REMARKS

Reconsideration is requested in view of the above amendments and the following remarks. Claim 24 has been revised. New claim 47 has been added. Support for the revisions and new claims can be found at, e.g., page 19, line 28 to page 20, line 7 and the paragraph bridging pages 33 and 34 of the specification, among other places. Claims 28 and 32-36 have been revised editorially. Claims 29-31 and 37-46 have been canceled without prejudice. Claims 24, 28, 32-36 and 47 are pending in the application.

Claim Rejections – 35 USC § 112

Claims 24, 29, 37 and 42 are rejected under 35 USC 112, second paragraph, as being indefinite. Applicants respectfully traverse the rejection. Claim 24 has been revised to address Examiner's concerns.

With respect to the "binder resin," Applicants note that "a binder resin" in the preamble of claim 24 provides sufficient antecedent basis for "the binder resin" in "performing heat-and-humidity treatment on the binder resin" in claim 24.

With respect to "forming a filler-affixed fiber," the filler is dispersed on a fiber surface, instead of dispersed in a fiber structure (see, e.g., Figs. 1A-C and page 25, lines 18-27 of the specification, among other places). In fact, after performing a heat-and-humidity treatment, the filler is affixed to the surface of the fiber by a binder resin (see, e.g., Figs. 1A-C, among other places). Therefore, Applicants respectfully submit that the meaning of "forming a filler-affixed fiber" in claim 24 is definite.

Withdrawal of the rejections is respectfully requested.

Claim Rejections – 35 USC § 103

Claims 24, 28 and 32-36 are rejected under 35 USC § 103(a) as being unpatentable over Japanese Patent Publication No. JP 2000-215872 in view of Foster et al. (WO 95/06769) and Noltex Soarnel DT 2903 and EVALCA EVAL F100, material data sheets. Applicants respectfully traverse this rejection.

Claim 24 requires performing heat-and-humidity treatment on a binder resin that includes heat-and-humidity gelling resin in a heat and humidity atmosphere to cause the

heat-and-humidity gelling resin to gel, so that the filler is affixed to the surface of the fiber by the binder resin that has been subjected to heat and humidity to form a gel material, where the heat-and-humidity treatment comprises exposing the fiber to steam while substantially preserving a fiber form. Claim 24 also requires the heat-and-humidity gelling resin being in a gel state when subjected to heat and humidity. Claim 24 further requires performing heat-and-humidity treatment with a heat and humidity atmosphere that has a temperature range from not less than a gelling temperature of a heat-and-humidity gelling resin to not more than a melting point minus 20°C.

In the present method of exposing the fiber to steam, the pressure that is added to the fiber during the gelling process is not more than necessary. This allows the filler to be affixed uniformly on the surface of the fiber. It also prevents the non-woven fabric from substantial deformation. As a result, the shape of the non-woven fabric is substantially maintained when the filler is affixed to the surface of the fiber (see, e.g., page 20, lines 2-4 of the specification and Figs. 1A-B, among other places).

In addition, the present method is advantageous in that it helps maintain the shape of the fiber since the heat-and-humidity gelling resin fiber component is caused to gel at a temperature not more than the melting point minus 20°C and thereby shrinkage or hardening of the fiber is prevented. The shape of the fiber is in turn maintained (see, e.g., page 3, lines 13-21 of the specification, among other places).

The rejection acknowledged that JP 2000-215872 is silent as to the specifics of a steam process. Foster et al. do not remedy the deficiencies of JP 2000-215872.

Foster et al. fail to teach or suggest performing heat-and-humidity treatment on a binder resin that includes heat-and-humidity gelling resin in a heat and humidity atmosphere to cause the heat-and-humidity gelling resin to gel, so that the filler is affixed to the surface of the fiber by the binder resin that has been subjected to heat and humidity to form a gel material, wherein the heat-and-humidity treatment comprises exposing the fiber to steam while substantially preserving a fiber form, as required by claim 24.

Foster et al. merely discuss use of a plurality of high temperature superheated steam jets 12 to impinge on a fiber web 11 to melt a melt component (a thermoplastic fiber) fiber and fuse the fiber together (see Foster et al., page 2, last paragraph to page 3,

last paragraph, page 5 and Figs. 1-3). In fact, the melting process of the melting component in Foster et al. indicates that deformation of the fiber web 11 has occurred. The present method of exposing a fiber to steam while substantially preserving a fiber form merely brings the fiber into contact with steam and is completely distinct from impinging the superheated steam jets 12 on the fiber web 11 discussed in Foster et al.

Moreover, the high temperature superheated steam jets 12 impinged on the fiber web 11 impose high pressures on the fiber web 11. A jet is a forceful rush of liquid, gas, or vapor through a narrow or restricted opening in spurts or in a continuous flow (see WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY (UNBRIDGED), at 1214 (MERRIAM-WEBSTER INC., 1986)). When the high temperature superheated steam jets 12 are impinged on the fiber web 11, the high pressure of the steam jets 12 would cause the filler to be separated from the fiber, and as a result, the amount of the filler that remain affixed to the fiber would be disadvantageously reduced. Also, because of the high pressure of the steam jets 12, it would be impossible to maintain the shape of the non-woven fabric. More specifically, when steam jets at a high pressure collide against non-woven fabric, etc., the fibers constituting the non-woven fabric, etc. are moved by the high pressure, and finally, the fibers may be entangled. As a result, it is considered that a change in thickness and density of the non-woven fabric, etc., and a change in shape of the non-woven fabric are larger before and after the treatment under the high pressure of the steam jets (compared with the method for exposing to steam of the present application).

Further, the plurality of spaced-apart jets 12 of Foster et al. would not be able to allow filler to be distributed uniformly to a surface of the fiber. The spaced-apart jets 12 of Foster et al. would only melt the regions that the jets are impinged on and as a result, the filler will only be affixed to the local melting regions. The present method of exposing the fiber to steam helps affix filler more uniformly to the surface of the fiber.

In addition, Foster et al. fail to teach or suggest the heat-and-humidity gelling resin being in a gel state when subjected to heat and humidity, as required by claim 24. Nor do Foster et al. teach or suggest performing heat-and-humidity treatment with a heat and humidity atmosphere that has a temperature range from not less than a gelling

temperature of a heat-and-humidity gelling resin to not more than a melting point minus 20°C, as required by claim 24. On the other hand, Foster et al. discuss melting a melt component fiber by high temperature superheated steam jets 12 to fuse the fiber together to make non-woven fabric (see Foster et al., page 5). Nowhere do Foster et al. teach or suggest use of a heat and humidity atmosphere that has a temperature that is not more than a melting point minus 20°C.

For at least these reasons, claim 24 is patentable over JP 2000-215872 in view of Foster et al. Claim 28 and 32-36 depend ultimately from claim 24 and are patentable along with claim 24 and need not be separately distinguished at this time. Applicants are not conceding the correctness of the rejection.

Claims 29-31 are rejected under 35 USC § 103(a) as being unpatentable over Japanese Patent Publication No. JP 2000-215872 in view of Foster et al. (WO 95/06769), Van Hartesveldt (US 2,841,823) and Noltex Soarnel DT 2903 and EVALCA EVAL F100, material data sheets. The rejection of claims 29-31 is moot in view of the cancellation of these claims. Applicants are not conceding the correctness of the rejection for claims 29-31.

Claims 37-46 are rejected under 35 USC § 103(a) as being unpatentable over Japanese Patent Publication No. JP 2000-215872 in view of Foster et al. (WO 95/06769), Noltex Soarnel DT 2903 and EVALCA EVAL F100, material data sheets and Sisson (US 4,209,563). The rejection of claims 37-46 is moot in view of the cancellation of these claims. Applicants are not conceding the correctness of the rejection for claims 37-46.

Applicants note again that the corrected form 1449 submitted on August 24, 2006 was not returned with the current Office Action. Confirmation of consideration for the reference cited in the corrected form 1449 is respectfully requested.

In view of the above, favorable reconsideration in the form of a notice of allowance is respectfully requested. Any questions regarding this communication can be directed to the undersigned attorney, James A. Larson, Reg. No. 40,443, at (612) 455-3805.

Respectfully submitted,

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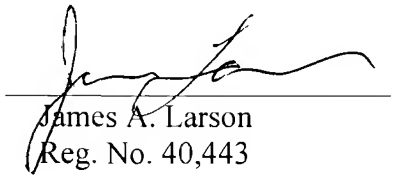
By: 
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